

Problem 4.23: Jamming

Sid Richardson college decides to set up its own AM radio station KSRR. The resident electrical engineer decides that she can choose **any** carrier frequency and message bandwidth for the station. A rival college decides to **jam** its transmissions by transmitting a high-power signal that interferes with radios that try to receive KSRR. The jamming signal **jam** (t) is what is known as a **sawtooth** wave (depicted in Figure 4.31) having a period known to KSRR's engineer.

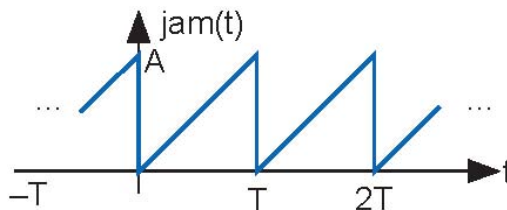


Figure 4.31 Jamming

Find the spectrum of the jamming signal.

Can KSRR entirely circumvent the attempt to jam it by carefully choosing its carrier frequency and transmission bandwidth? If so, find the station's carrier frequency and transmission bandwidth in terms of T , the period of the jamming signal; if not, show why not.